# Isolated power panel VIT-AFSBY

with ATICS® changeover and monitoring device, insulation fault locator and bypass switch for operating theatres and intensive care units





## for operating theatres and intensive care units

# **Isolated power panel VIT-AFSBY**

with ATICS® changeover and monitoring device, insulation fault locator and bypass switch





## **Device features**

- · Installations
  - Automatic changeover and monitoring device ATICS® including monitoring of i.e.:
  - Voltage of incoming supply
  - Output voltage
  - Correct operating times
  - Changeover times
  - Insulation resistance
  - Load current
  - Transformer temperature
  - Functional safety acc. IEC 61508 (SIL2)
  - Up to 12 or 24 outgoing circuits with circuit breakers, B1xA, 2 pole
  - Insulation fault monitoring device
  - New energy-efficient isolating transformer, (6300, 8000VA) Inrush current < 6 x In</li>
- Uninterrupted testing and replacement with bypass switch
- Variable changeover time  $t \le 0.5...15$  s
- Exchange of information by means of bus technology
- Connection for remote alarm and operator panels MK2430/CP305/CP9xx
- Short delivery times
- Cost and time savings thanks to ready-toconnect cabinets
- Sheet steel housing as to DIN VDE 0100-710
- Designed in accordance with the requirements of applicable standards
- Design verification according to new DIN/EN 61439-1, -2, VDE 0660-600-1, -2
- Voluntary test of changeover module by the independent German technical service, testing and inspection organization (TÜV)

## **Application**

The isolated power panels of the VIT-AFSBY series supply electrical power to group 2 medical locations, e.g. operating theatres and intensive care units. For socket-outlet circuits for medical electrical equipment with nominal voltages exceeding AC 25 V or DC 60 V, the protective measure "Protection by insulation monitoring with indication in the IT system" is mandatory.

Furthermore, a changeover module is required to change over automatically from the safety power supply source to a second supply source in case of failure. An insulation fault locator is integrated in the VIT-AFSBY for quick localisation of insulation faults.

## **Functional description**

The IT system distribution cabinet in the VIT-AFSBY series contain an isolating transformer and a changeover and monitoring module UMA710-2-xx-ISO-... with bypass switch and with all the necessary monitoring equipment for IT systems in accordance with DIN VDE 100-710.

- · Changeover modules with control function
- Insulation monitoring
- · Load and temperature monitoring

The isolated power panel also contains an insulation fault location device for 12, 18 or 24 outgoing circuits. On the secondary side of the isolating transformer, 12, 18 or 24 circuit breakers (B1xA, 2 pole) are built in accordingly. The socket outlets of the Group 2 room are connected to these circuit breakers.

To reduce noise pollution, the waste heat is dissipated by natural convection, even at 100 % transformer load

#### **Functions in accordance with DIN VDE 0100-710**

- Voltage monitoring with adjustable control function on the preferred line and on the second line and at the output of the changeover device
- Variable changeover time t 0.5...15 s to change over from AV (normal power supply source) to SV (safety power supply source) resp. from SV to UPS (uninterruptible power supply source).
- Protection against wrong operation by mechanical and electrical multiple interlocking
- · Cables are laid to resist short-circuits and earth faults
- Control circuit with single fault tolerance according to DIN VDE 0100-710
- · Automatic return on voltage recovery
- Functional testing including checking of the operating times
- Insulation, load current and temperature monitoring for the IT system
- Monitoring of the system/PE connections of the insulation monitoring device
- Isolating transformer 6300 or 8000 VA for IT system with inrush current  $< 6 \times I_n$

## Further measures to increase the electrical safety

- Continuous monitoring of the actuation devices and automatic processes (coil, control contacts, connections).
- Monitoring for short-circuits upstream and at the output of the changeover device and the pre-defined switching behaviour
- · Maximum reliability when switching:
  - due to patented switching system with mechanical and electrical interlocking
  - due to weld-free switching contacts with the mechanics of a circuit-breaker
  - resistant to e.g. voltage fluctuations or vibrations due to stable switching position and permanent contact pressure
- Preventive safety thanks to automatic reminders for prescribed tests, service times and number of switching operations
- Bypass switch for uninterrupted testing/maintenance
- Voluntary TÜV test of the changeover module
- Tested functional safety in accordance with IEC 61508 (SIL2) of the ATICS® switch (Provide messages at two points at least)



## Changeover and monitoring module

In fault-free condition, the preferred supply line is switched on. If the voltage falls below the set value, a changeover to the second supply line will automatically take place. The changeover period can be set individually. In order to ensure operational readiness, the second line as well as the output of the changeover module (Line 3) are monitored too. On voltage recovery, return to the preferred supply line occurs automatically. Due to variable delay times (return transfer times or delay times), the changeover module meets the individual installation-specific requirements (e.g. coordination of several changeover modules, reduction of switching energy).

A bypass switch is provided for uninterrupted testing and maintenance of the changeover and monitoring device.

## Insulation, load and temperature monitoring

The insulation monitoring device continuously monitors the insulation resistance, load current and the temperature of the IT system transformer. If one or several response values have been reached (insulation resistance, load current, temperature), the alarm relay switches and a corresponding message occurs. The connections to the system and PE, as well as to the measuring current transformer and temperature sensor, are permanently monitored. In the event of wire breakage or short-circuit, a message will appear. The patented AMP measuring technique is used in order to exclude the possibility of insulation monitoring being impaired by DC components.

## Insulation fault location system (EDS system)

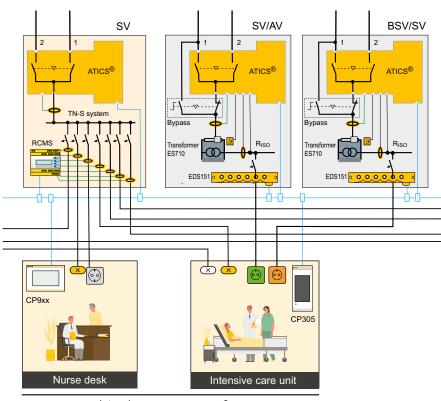
In medical used areas of room group 2, with many socket-outlet circuits or loads (e.g. intensive care units) it is often time-consuming and difficult for medical or technical personnel to locate circuit faults or loads. The EDS insulation fault location system solves this problem by automatically localising the insulation fault during operation. This has two major advantages: time- and cost-optimised fault localisation and availability, since the system remains in operation during the automatic fault search.

## **Functionality of the EDS system**

If the ATICS-2-xx-ISO changeover and monitoring device reports an insulation fault, the insulation fault location starts: The device generates a test current of max. 1 mA. This test current flows via the insulation fault location and via the earth cable (PE cable) back to the test device. The locating current is detected by the measuring current transformer in the fault path and signalled by the EDS insulation fault locator via the bus. The localisation of the faulted circuit or load is based on the assignment of the measuring current transformer/outgoing circuit to an individual text message, e.g. on a alarm and control panel CP9xx, on the alarm and test combination CP305 or MK2430.

## Messages displayed in plain text

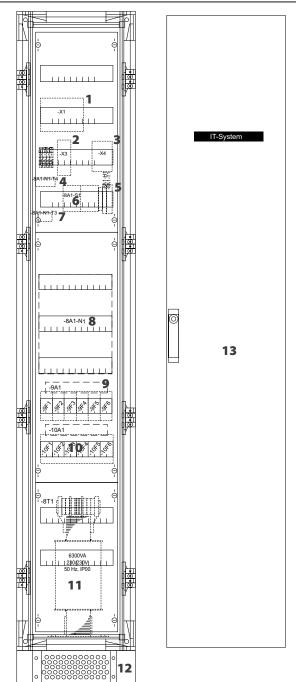
The unique status, warning and fault messages are displayed in plain text, whereby the required alarm and test combination MK2430, CP305 or the alarm and control panel CP9xx must be provided in the medical area at a suitable location that is permanently monitored by the medical staff. A two-wire bus cable is required to connect the isolated power panel VIT-AFSBY to the alarm indicator panels.



Intensive care area group 2



# Design



- **1 -** Terminals for the incoming conductors
- **2 -** Terminals for the control connections
- **3** Terminals for the outgoing conductors
- **4 -** Current transformer for load monitoring of the IT transformer
- **5** Power supply unit for MK2430/CP305/CP9xx alarm indicator and test combinations

- 6 Bypass switch
- **7 -** Current transformer for current monitoring
- **8 -** Changeover and monitoring device ATICS® (3 rows)
- **9** EDS151 insulation fault locator
- **10** B1x A circuit breaker, 6 outputs per row
- 11 IT system transformer
- 12 base, perforated
- 13 front door

# Design details isolated power panel

Cabinet range	Striebel & John, Triline F
Cabinet type	
VIT-AFSBY-112S-	1/8 R 4
VIT-AFSBY-114S-	1/10 R 4
Degree of protection	IP21
Protection class	SK I (earthed)
Ventilation	natural convection, ventilation opening
Panel construction	partition between the different types of supply systems
Cable entry	incoming and outgoing cables from above
Doors and walls	sheet steel 1.52 mm
Doors/hinge	right
Door lock	Bar lock with 3 mm double-bit insert
Paint finish	RAL 7035
Plinth	sheet steel, height 100 mm, RAL 7005
Installation data	
Type of assembly	floor-mounted cabinet with door and plinth
Type of installation	free-standing
Ambient temperature	max. 30 °C
Dimensions (B x H x T)	
VIT-AFSBY-112S-	374 x 2025 x 425 mm
VIT-AFSBY-114S-	374 x 2325 x 425 mm
Type of wiring	
Klemmenraum	at the top
Cable duct	none
Protective/neutral conductor	PE terminals, disconnect terminal $\leq 10 \text{ mm}^2$
Busbars	none
Conductor colours	acc. to DIN EN 60446 (VDE 0198), IEC 60446
Conductors	halogen-free
Labelling	
Devices	adhesive labels, DIN EN 61346-2, IEC 61346-2
Isolated power panel	adhesive labels, black type on a white
System type labelling	according to DIN
System data	
Type of system	IT system
Nominal voltage	N/PE/AC 230 V



# **Technical data**

Insulation coordination acc. to IEC 60664-1 1)	
Rated insulation voltage	AC 400 V
Voltage test acc. to IEC 61010-18 (normal/protective separation)	2.21 kV/3.54 kV
Poweer unit/switching elements 1)	
Switching system Patented mechanical,	/electrical locking system
Rated operational voltage $U_{\rm e}$	AC 230 V
Operating range $U_{\rm e}$	0.81.15 x <i>U</i> <sub>e</sub>
Frequency f <sub>e</sub>	5060 Hz
Rated operational current Ie of the module  Fuse	(AC-3) 63 A/80 A 63 A/80 A gG
Utilization category	AC-3
Changeover period, adjustable	≤ 0.5 s15 s
Strom während des Umschaltvorgangs	<17 A/<30 ms
Circuit breaker (project-related)	B 16 A
Voltage monitoring/switching 1)	
Response values	
undervoltage alarm 1 (1 V steps)	160220 V
overvoltage alarm 2 (1 V steps)	240275 V
Response time t <sub>on</sub> (50 ms steps)	50 ms100 s
Return transfer time $t_{\text{off}}$ (50 ms steps)	50 ms100 s
Hysteresis (1 % steps) Frequency measurement	210 % 40460 Hz
Relative percentage error	±1%
Isolating transformer	
Classification of insulation	t <sub>a</sub> 40/B
Insulation	double insulation
Ambient temperature	≤ 40 °C
Rated power	31508000 VA
Rated frequency	5060 Hz
Rated input voltage	AC 230 V
Rated output voltage	AC 230/115 V
Inrush current I <sub>E</sub> Leakage current	$< 6 x I_n$ $\le 0.5 \text{ mA}$
No-load input current i <sub>0</sub>	<u>≤ 0.5 IIIA</u> ≤ 3 %
Short-circuit voltage $U_k$	<u></u>
Shielding between primar	y and secondary winding
Current monitoring (output current) 1)	
Measuring range $I_n$ (true r.m.s.)	0200 A
Response value for message (1 A steps)	1160 A
Response value for short-circuit detection	160 A
Response delay $t_{\rm on}$ (50 ms steps)	50 ms100 s
Delay on release $t_{\text{off}}$ (50 ms steps)	50 ms100 s
Hysteresis	530 %
Insulation monitoring 1)	
Measuring range	10 k1 MΩ
Response value R <sub>an1</sub> (alarm 1)	50250 kΩ ± 15%
Relative uncertainty Hysteresis	± 15% ≤ 25%
Response time $t_{an}$ at $R_F = 0.5$ x $R_{an}$ and $C_e = 1\mu F$	≤ 3.5 s
Measuring voltage $U_{\rm m}$	≤ DC 12 V
Measuring current $I_{\rm m}$ (at $R_{\rm F}=0~\Omega$ )	≤ 120 µA
Internal resistance DC R <sub>i</sub>	≥ 240 kΩ
Impedance Z <sub>i</sub> at 50 Hz	≥ 240 kΩ
Permissible system leakage capacitance C <sub>e</sub>	≤ 1 µF
Load current monitoring 1)	
Measuring range, from response value	10110 %
Response value (1A steps)	550 A (100A)
Hysteresis	530 %

Release value  Measuring time  S. Max. 6 in seri Insulation fault location 11 Test current I/T Test current I/T Test cycle/pause  Cas/A  Interface 10 Interface 1	Temperature monitoring 1)	
Measuring time PTC resistors acc. to DIN 44081 max. 6 in seric Insulation fault location ¹¹ Test current I₁ 1m Test cycle/pause 2 5.44 Interface ¹¹ Interface ¹¹ Interface protocol RS-485/BM Baud rate 9,6 kBit cable length 1pm in J-Y(SIY) 2x0 (2x5 4 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Response value	4 kΩ
PTC resistors acc. to DIN 44081  Test current I₁ Test current I1 Test curren		1.6 kΩ
Test current I <sub>T</sub>   1 m   1		≤ 2s
Test current I <sub>T</sub> Test cycle/pause  1	PTC resistors acc. to DIN 44081	max. 6 in series
Test cycle/pause 2 5/4  Interface 1)  Interface 2)  Interface 3  Interface 4)  Interface 4)  Interface 5  Interface 5  Interface 5  Interface 5  Interface 6  Interface 6  Interface 9 9.6 kBit 6  Cable length 6 1 20.0 kBit 6  Cable 1 20.0 (2.5 V 120.0 kBit 6  Terminating resistor 120.0 (2.5 V 120.0 (2.5	Insulation fault location <sup>1)</sup>	
Interface ¹¹  Interface/protocol RS-485/BM Baud rate 9.6 kBit Cable length ≤ 1200 Cable, recommended (twisted pairs, shielded, shield connected to PE on one side) min. J-Y(S1)Y 2x0 Terminating resistor 120 Ω (0.25 W Device address 25 Display, characters graphic display thistory memory (messages) 300 data record switching elements (alarm contacts) ¹¹ Number 1 changeover contact, potential-fro Operating principle (N/C or N/O operation selectable) N/C operatic contact data AC 230 V, 5 A/DC 30V, 5 A/DC 30		1 mA
Interface/protocol Baud rate Cable length Cable length Cable length Cable, recommended (twisted pairs, shielded, shield connected to PE on one side) Terminating resistor Device address Display, characters Display, characters Display, characters Display, characters Display, characters Display contact, potential-free Dout on made a Casud Contacters Display characters Displ	Test cycle/pause	2 s/4 s
Baud rate  Cable length  Cable length  Cable, recommended (twisted pairs, shielded, shield connected to PE on one side)  Terminating resistor  Device address  Display, characters  Display, characters  Display, characters  Display, characters  History memory (messages)  Switching elements (alarm contacts) 13  Number  Operating principle (N/C or N/O operation selectable)  Contact data  AC 230V, A/DC 30V, 5  Rated operational voltage Ue  Electrical endurance  Minimum contact rating  Monitoring device EMC immunity  Monitoring device EMC emission  Classification of climatic conditions acc. to IEC 60721  Stationary use  Transport  Congerem storage  Classification of mechanical conditions acc. to IEC 60721  Stationary use  Transport  Classification of mechanical conditions acc. to IEC 60721  Stationary use  Transport  Connection  Connection  Connection  Connection  Connection  Connection  Connection  Connection  Pluggable screw termina  Connection  Connection  Pluggable screw termina  Connection  Pluggable screw termina  Connection  Pluggable screw termina  Connection  Connection  Connection  Connection  Pluggable screw termina  Connection  Conne	Interface 1)	
Cable length       ≤ 1200         Cable, recommended (twisted pairs, shielded, shield connected to PE on one side)       min. J-Y(St)Y 2x0         Terminating resistor       120 Ω (0.25 V         Device address       29         Bisplay, characters       graphic display         History memory (messages)       300 data record         Switching elements (alarm contacts) 1)         Number       1 changeover contact, potential-free         Operating principle (N/C or N/O operation selectable)       N/C operation         Contact data       AC 230V, 5 A/DC 30V, 5         Rated operational voltage Ue       AC 230 V/DC 22C         Electrical endurance       10.000 number of cycle         Minimum contact rating       10 mA at AC/DC > 5         Environment/EMC ¹¹       EN 61000-6         Monitoring device EMC emission       EN 61000-6         Classification of climatic conditions acc. to IEC 60721       Stationary use         Transport       2K         Long-term storage       1K         Operating temperature, Bender devices       -10+55         Classification of mechanical conditions acc. to IEC 60721       Stationary use         Transport       2N         Long-term storage       1M         Terminals ¹¹       2N <td>Interface/protocol</td> <td>RS-485/BMS</td>	Interface/protocol	RS-485/BMS
Cable, recommended (twisted pairs, shielded, shield connected to PE on one side)       min. J-Y(St)Y 2x0         Terminating resistor       120 Ω (0.25 V         Device address       2	Baud rate	9.6 kBit/s
Terminating resistor Device address 25 Device address 25 Display, characters History memory (messages) 300 data record  Switching elements (alarm contacts) 1) Number 1 changeover contact, potential-fro Operating principle (N/C or N/O operation selectable) N/C operatic Contact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 1) Monitoring device EMC immunity Monitoring device EMC emission EN 61000-6 Classification of climatic conditions acc. to IEC 60721 Stationary use Transport 2K: Long-term storage 1LC Operating temperature, Bender devices Classification of mechanical conditions acc. to IEC 60721 Stationary use Transport 2K: Classification of mechanical conditions acc. to IEC 60721  Classification of mechanical conditions acc. to IEC 60721  Stationary use Transport 2M Transport 2M Cong-term storage 1MM Terminals 1)  Control section Connection Pluggable screw termina Connection Connectio		≤ 1200 m
Device address 25 Display, characters graphic displathistory memory (messages) 300 data record  Switching elements (alarm contacts) 11 Number 1 changeover contact, potential-fre Operating principle (N/C or N/O operation selectable) N/C operation Contact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue AC 230 V/DC 22C Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 11 Monitoring device EMC immunity EN 61000-6 Monitoring device EMC emission EN 61000-6 Classification of climatic conditions acc. to IEC 60721 Stationary use 3KZ Transport 2KZ Long-term storage 1KZ Operating temperature, Bender devices -10+55* Classification of mechanical conditions acc. to IEC 60721 Stationary use 3MZ Transport 2MZ Control section 9Pluggable screw termina Connection Pluggable screw termina Connection Conne	Cable, recommended (twisted pairs, shielded, shield connected to PE on o	ne side) min. J-Y(St)Y 2x0.6
Display, characters graphic displa: History memory (messages) 300 data record Switching elements (alarm contacts) 19  Number 1 changeover contact, potential-from Operating principle (N/C or N/O operation selectable) N/C operation Contact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue AC 230V V/DC 20C Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 19  Monitoring device EMC immunity EN 61000-6 Monitoring device EMC emission EN 61000-6  Classification of climatic conditions acc. to IEC 60721  Stationary use 3KC Transport 2K1 Clong-term storage 1K2 Operating temperature, Bender devices -10+55*  Classification of mechanical conditions acc. to IEC 60721  Stationary use 3MC Transport 2W1 Cong-term storage 1MC Transport 2W1 Cong-term storage 1MC Transport 2W2 Congeterm storage 1MC Transport 2W2 Connection Pluggable screw termina Connection	<b>-</b>	120 Ω (0.25 W)
History memory (messages)  Switching elements (alarm contacts) 1)  Number 1 changeover contact, potential-fre Operating principle (N/C or N/O operation selectable)  Ontact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue AC 230 W/DC 20C Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 1)  Monitoring device EMC immunity EN 61000-6 Monitoring device EMC emission EN 61000-6 Classification of climatic conditions acc. to IEC 60721 Stationary use 3KZ Transport 2KZ Operating temperature, Bender devices -10+55 1 Classification of mechanical conditions acc. to IEC 60721 Stationary use 3MZ Transport 2MZ Transport 2MZ Operating temperature, Bender devices -10+55 1 Classification of mechanical conditions acc. to IEC 60721 Stationary use 3MZ Transport 2MZ Transport 2MZ Cong-term storage 1MZ Operating temperature, Bender devices -10+55 1 Control section Pluggable screw termina Connection Connect		290
Switching elements (alarm contacts) 1)  Number 1 changeover contact, potential-fro Operating principle (N/C or N/O operation selectable) N/C operation Contact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue AC 230 V/DC 22C Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 1)  Monitoring device EMC immunity EN 61000-6 Monitoring device EMC emission EN 61000-6  Classification of climatic conditions acc. to IEC 60721  Stationary use 3K2 Transport 2K3 Long-term storage 1K2 Operating temperature, Bender devices -10+55 ** Classification of mechanical conditions acc. to IEC 60721  Stationary use 3M3 Transport 2M2 Long-term storage 1M3  Terminals 1)  Control section Connection Pluggable screw termina Connection Connectio	1 /-	graphic display
Number 1 changeover contact, potential-fre Operating principle (N/C or N/O operation selectable)  N/C operatic Contact data AC 230V, 5 A/DC 30V, 5 Rated operational voltage Ue AC 230 V/DC 20C Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC ¹¹  Monitoring device EMC immunity EN 61000-6 Monitoring device EMC emission EN 61000-6  Classification of climatic conditions acc. to IEC 60721  Stationary use 3KZ Transport 2KZ Cong-term storage 1KZ Operating temperature, Bender devices -10+55°  Classification of mechanical conditions acc. to IEC 60721  Stationary use 3MI Transport 2N Cong-term storage 1MI  Terminals ¹¹  Control section Connection Pluggable screw termina Connection properties rigid/flexible 0.141.5mn  Stripping length 7m  Power section Connection Pluggable screw termina Connection Pluggable screw termina Connection Pluggable screw termina Connection Pluggable screw termina Connection Connec	History memory (messages)	300 data records
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Rated operational voltage $U_e$		N/C operation
Electrical endurance 10.000 number of cycle Minimum contact rating 10 mA at AC/DC > 5  Environment/EMC 1)  Monitoring device EMC immunity EN 61000-6- Monitoring device EMC emission EN 61000-6- Classification of climatic conditions acc. to IEC 60721  Stationary use 3K. Transport 2K. Coperating temperature, Bender devices -10+55 of Classification of mechanical conditions acc. to IEC 60721  Stationary use 3M. Transport		AC 230V, 5 A/DC 30V, 5A
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Monitoring device EMC immunity EN 61000-6  Monitoring device EMC emission EN 61000-6  Classification of climatic conditions acc. to IEC 60721  Stationary use 3K2 Transport 2K1 Long-term storage 1K2 Operating temperature, Bender devices -10+55 classification of mechanical conditions acc. to IEC 60721  Stationary use 3M1 Transport 2N Long-term storage 1M1  Terminals 1)  Control section  Connection Pluggable screw termina Connection properties rigid/flexible 0.141.5mn  Stripping length 7m  Power section  Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mn  Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible 1070mm²/650 mn  Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mn²// 4 mn²// 5 mn²/// 4 mn²/// 5 mn²//// 4 mn²////////////////////////////////////	Minimum contact rating	10 mA at AC/DC > 5 V
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Transport 2KT Long-term storage 1KZ Operating temperature, Bender devices -10+55 of Classification of mechanical conditions acc. to IEC 60721 Stationary use 3MT Transport 2N Long-term storage 1MT  Terminals 1)  Control section Connection Pluggable screw terminate of Connection properties rigid/flexible 0.141.5mm Stripping length 7m  Power section Connection Pluggable screw terminate of Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section Connection cage clamp terminate of Connection properties rigid/flexible 1070mm²/650 mm Connection cage clamp terminate of Connection properties rigid/flexible 1070mm²/650 mm	Classification of climatic conditions acc. to IEC 60721	
Long-term storage 1KZ Operating temperature, Bender devices -10+55 or Classification of mechanical conditions acc. to IEC 60721 Stationary use 3M3 Transport 2N Long-term storage 1M3  Terminals 1)  Control section Connection Pluggable screw terminate or connection properties rigid/flexible 0.141.5mm Stripping length 7m  Power section Connection Pluggable screw terminate or connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section Connection cage clamp terminate or connection properties rigid/flexible 1070mm²/650 mm Connection cage clamp terminate or connection properties rigid/flexible 1070mm²/650 mm	Stationary use	3K22
Operating temperature, Bender devices -10+55 of Classification of mechanical conditions acc. to IEC 60721  Stationary use 3M1 Transport 2N Long-term storage 1M1  Terminals 1)  Control section Connection Pluggable screw termina Connection properties rigid/flexible 0.141.5mn Stripping length 7m  Power section Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mn Stripping length 15 m Outgoing section Connection cage clamp termina Connection properties rigid/flexible 1070mm²/650 mn Stripping length 15 m Outgoing section Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²/4 mm²	Transport	2K11
Classification of mechanical conditions acc. to IEC 60721  Stationary use 3M1 Transport 2N Long-term storage 1M1  Terminals 1)  Control section Connection Pluggable screw terminal Connection properties rigid/flexible 0.141.5mn Stripping length 7m  Power section Connection Pluggable screw terminal Connection properties rigid/flexible 1070mm²/650 mn Connection properties rigid/flexible 1070mm²/650 mn Connection properties rigid/flexible 1070mm²/650 mn Connection cage clamp terminal Connection cage clamp terminal Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mn²/ 4 mn²		1K22
Stationary use 3M1 Transport 2N Long-term storage 1M1  Terminals 1)  Control section  Connection Pluggable screw termina Connection properties     rigid/flexible 0.141.5mn Stripping length 7m  Power section  Connection Pluggable screw termina Connection Pluggable screw termina Connection properties     rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties     rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²/4 mm²	Operating temperature, Bender devices	-10+55 °C
Transport 2M Long-term storage 1M1  Terminals 1)  Control section  Connection Pluggable screw terminal Connection properties     rigid/flexible 0.141.5mn Stripping length 7m  Power section  Connection Pluggable screw terminal Connection Pluggable screw terminal Connection Pluggable screw terminal Connection properties     rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp terminal Connection properties     rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²/4	Classification of mechanical conditions acc. to IEC 60721	
Long-term storage 1M1  Terminals 1)  Control section  Connection Pluggable screw terminal Connection properties rigid/flexible 0.141.5mn  Stripping length 7m  Power section  Connection Pluggable screw terminal Connection properties rigid/flexible 1070mm²/650 mm  Stripping length 15 m  Outgoing section  Connection cage clamp terminal Connection properties rigid/flexible 1070mm²/650 mm  Outgoing section  Connection cage clamp terminal Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²/	Stationary use	3M11
Terminals 1)  Control section  Connection Pluggable screw terminal Connection properties     rigid/flexible 0.141.5mn Stripping length 7m  Power section  Connection Pluggable screw terminal Connection Pluggable screw terminal Connection properties     rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp terminal Connection properties     rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²/4	·	2M4
Control section Connection Pluggable screw termina Connection properties rigid/flexible 0.141.5mn Stripping length 7m  Power section Connection Pluggable screw termina Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mn Stripping length 15 m  Outgoing section Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Long-term storage	1M12
Connection Pluggable screw terminal Connection properties rigid/flexible 0.141.5mn 7m    Power section    Connection Pluggable screw terminal 7m    Power section    Connection Pluggable screw terminal 7m    Connection properties rigid/flexible 1070mm²/650 mm    Stripping length 15 m    Outgoing section    Connection cage clamp terminal 7mn    Connection cage clamp terminal 7mn    Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Terminals <sup>1)</sup>	
Connection properties rigid/flexible 0.141.5mm Stripping length 7m  Power section  Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Control section	
rigid/flexible 0.141.5mm Stripping length 7m  Power section  Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Connection	Pluggable screw terminals
Stripping length 7m  Power section  Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Connection properties	
Power section     Pluggable screw termina       Connection properties rigid/flexible     1070mm²/650 mm²/650 mm       Stripping length     15 m       Outgoing section     cage clamp termina       Connection properties rigid/flexible/Conductor sizes     0.082.5 mm²/4 mm²		0.141.5mm <sup>2</sup>
Connection Pluggable screw termina Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Stripping length	7mm
Connection properties rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section  Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm	Power section	
rigid/flexible 1070mm²/650 mm Stripping length 15 m  Outgoing section Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm		Pluggable screw terminals
Stripping length 15 m  Outgoing section  Connection cage clamp termina  Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm		
Outgoing section       Connection     cage clamp termina       Connection properties     igid/flexible/Conductor sizes       0.082.5 mm²/4 mm²		
Connection cage clamp termina Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm		15 mm
Connection properties rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm		
rigid/flexible/Conductor sizes 0.082.5 mm²/ 4 mm²		cage clamp terminals
		200 25 24 3
ouripping length 6/ m		
	ətripping lengtn	6/ mm

# **Technical data (continued)**

Product standards	
Insulation monitoring	IEC 61557-8
Load and temperature monitoring	DIN VDE 0100-710
-	IEC 60364-7-710
Changeover device	DIN VDE 0100-710, IEC 60364-7-710
_	IEC 60947-6-1
Isolated power panel	IEC/DIN EN 61439-1, -2, VDE 0660-600-1, -2
Isolating transformer	DIN VDE 0100-710, IEC 60364-7-710
-	IEC 61558-1, IEC 61558-2-15

Operating mode	continuous operation
Mounting	vertical
Schematic diagram/circuit diagram	Documentation will be created according to
	project-specific and customer-specific requirements
Documentation number	D00198
Weight/power consumption	see "Variants"

<sup>&</sup>lt;sup>1)</sup> For more detailed technical information, please refer to the Technical Device Manual ATICS®, D00046.

## **Variants**

Туре	Dimensions in mm		- Circuit breaker	Transformer	Dissipation loss <sup>1)</sup>	Weight	
Турс	Width	Depth	Height	Circuit bicanci	capacities	21331puttol1 1033	reight
VIT-AFSBY-112S-6300		374 425	2025	max. 12 pieces	6300 VA	ca. 253 W	ca.150 kg
VIT-AFSBY-112S-8000	274				8000 VA	ca. 298 W	ca.160 kg
VIT-AFSBY-114S-6300	3/4		2325	max. 24 pieces	6300 VA	ca. 253 W	ca.160 kg
VIT-AFSBY-114S-8000					8000 VA	ca. 298 W	ca.170 kg

<sup>1)</sup> Information on energy-efficient "Green Line" transformers.



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